

A NEW SPECIES OF *CHLORONIA* BANKS (MEGALOPTERA:
CORYDALIDAE) FROM BOLIVIA AND PERU

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Abstract.—The Neotropical genus *Chloronia* Banks (Megaloptera: Corydalidae: Corydalinae) contains 17 previously described species. *Chloronia yungas*, n. sp., from the highlands of Bolivia and Peru, is described and illustrated. The new species superficially resembles *C. pennyi* Contreras-Ramos from Brazil because of a spotted head color pattern. However, the morphology of the male genitalia of *C. yungas* indicates this species is closely related to *C. bogotana* Weele from Colombia. Both species share a ninth abdominal sternum with well-developed lateral lobes and slightly developed posteromedian lobes, but there are two patches of spinous setae on each side of the ninth tergum and one more at the base of the tenth tergite in the new species, while only one patch of spinous setae on each side of the ninth tergum is present in *C. bogotana*.

Resumen.—El género neotropical *Chloronia* Banks (Megaloptera: Corydalidae: Corydalinae) contiene 17 especies previamente descritas. En este artículo se describe e ilustra a *Chloronia yungas*, una especie nueva de las tierras altas de Bolivia y Perú. La especie nueva se parece superficialmente a *C. pennyi* Contreras-Ramos de Brasil por su patrón de manchas en la cabeza. No obstante, con base en la morfología genital del macho, *C. yungas* podría estar cercanamente emparentada a *C. bogotana* Weele de Colombia. Ambas especies comparten un noveno esterno abdominal con lóbulos laterales bien desarrollados y lóbulos posteromedios ligeramente desarrollados, pero existen dos grupos de sedas espinosas a cada lado del noveno tergo y uno más en la base del décimo terguito en la especie nueva, mientras que sólo un grupo de sedas espinosas, a cada lado del noveno tergo, está presente en *C. bogotana*.

Key Words: Neuropterida, Corydalinae, dobsonfly, Neotropics, Bolivia, Peru, taxonomy

Flint (1991) interpreted *Chloronia bogotana* Weele in the broad sense, incorporating variation from several specimens from adjacent countries (i.e., Ecuador, Peru, Bolivia). However, after a male specimen in good condition of *C. bogotana* finally became available for study (Contreras-Ramos 2004), the tax-

onomic identity of the species in this genus is becoming more discernible. In this paper, specimens of *Chloronia* from Bolivia and Peru examined by Flint (1991) from the collection at the National Museum of Natural History, Smithsonian Institution (NMNH), as well as an additional series from Bolivia from

the Phillip A. Adams Collection at the California Academy of Sciences, San Francisco (CAS), were studied and are reinterpreted as representing a previously undescribed species distinct from *C. bogotana*. All specimens studied were pinned adults. Techniques and morphological terminology followed Glorioso (1981) as modified by Contreras-Ramos (1998).

Chloronia Banks 1908

This Neotropical genus was revised by Penny and Flint (1982). Reference to all species described after the genus revision may be found in Contreras-Ramos (1999, 2002). Considering the species herein described, the total number of valid species in *Chloronia* is now 18.

Chloronia yungas Contreras-Ramos, new species (Figs. 1–6)

Chloronia bogotana: Flint 1991: 490 (figs. 1–3), 491 (figs. 6, 7).

Diagnosis.—This species is superficially similar to those with a pattern of dark posterolateral spots on the head (Figs. 2–3), *C. pennyi* Contreras-Ramos (2000, fig. 5) and *C. gairanii* Contreras-Ramos (2002, fig. 12). *Chloronia bogotana* Weele has instead a continuous posterolateral band (Contreras-Ramos 2004, figs. 7–8). Other species entirely lack spots, as *C. corripiens* (Walker); the lateral margins of the head are fuscous, as in *C. plaumanni* Penny and Flint; have a single spot on each side of the head, as in *C. mexicana* Stitz; or have a short and wide band on each side, as in *C. gloriosoi* Penny and Flint and *C. convergens* Contreras-Ramos. *Chloronia yungas* can be further separated from these other species by the male genitalia. It has an abdominal ninth sternum with well developed lateral lobes (Fig. 5), similar to the one in *C. bogotana* (Contreras-

Ramos 2004, fig. 5). Nonetheless, *C. yungas* has two patches of spinous setae on each side of abdominal ninth tergum, as well as one patch at the base of the tenth tergite (Fig. 4; Flint 1991, fig. 1), while *C. bogotana* has only a patch of spinous setae on each side of the ninth tergum (Contreras-Ramos 2004, fig. 4).

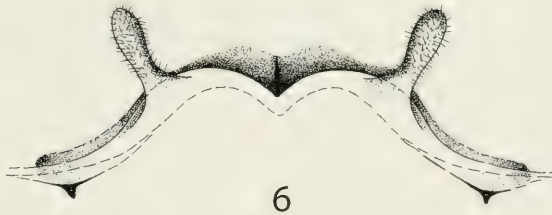
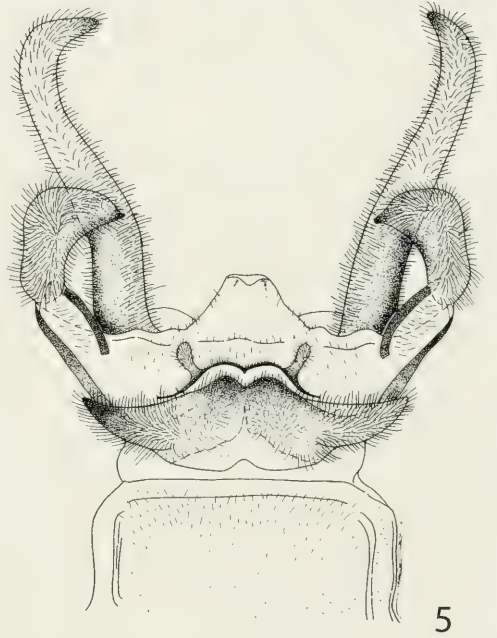
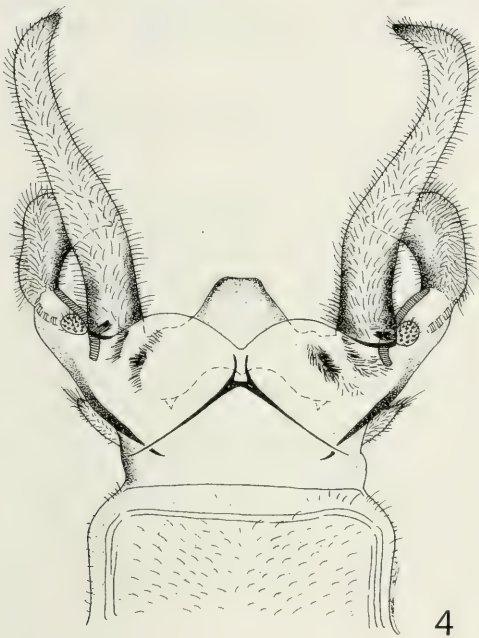
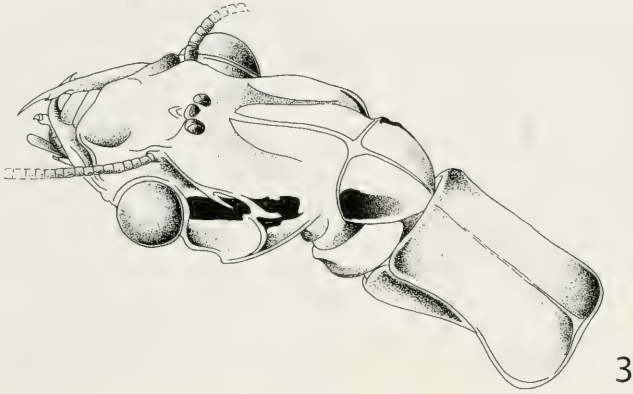
Description of adult (Figs. 1–3).—Forewing length, ♂ 42–50 mm (average 45.7 mm, $n = 7$), ♀ 48–50 mm (average 49.2 mm, $n = 3$). Color mostly pale yellow with fuscous spots on head and pronotum (Fig. 1). Head pale yellow, mandible brown with teeth dark reddish brown. Pattern of fuscous spots with a wide, elongate spot on upper side of postocular plane, a narrow spot dorsally adjacent, a pair of posterior elongate spots, and a round spot at occiput, on each side of head (Figs. 2–3). Compound eyes and base of ocelli dark. Antenna 38 to 45-segmented, filiform, entirely yellow to typically infuscate on apical $\frac{1}{4}$ to $\frac{1}{3}$. Maxilla yellow to brown, 5-segmented palp with last 4 segments to entirely infuscate; labium yellow, 4-segmented palp with last 3 segments to entirely infuscate.

Pronotum yellow, with two pairs of dark, nearly continuous, longitudinal bands (Figs. 1–2). Mesonotum without fuscous spots. Legs yellow, lacking spot at base of tibiae, tarsal claws brown. Forewing mostly pale yellow, with few narrow dark markings along some transverse veins or vein forkings; subtle pattern of three dark crossveins below Cu at base of wing, and small spot on anterior 2A cell. Hind wing pale yellow, first and second *r* finely infuscate.

Male genitalia (Figs. 4–6): Ninth tergum subtriangular, sparsely setose, with two patches of spinous setae posteriorly on each side (Fig. 4); V-shaped internal inflection nearly reaching posterior margin of tergum. Tenth tergites about 2.5 times as long as ninth tergum, finely



Figs. 1-2. *Chloronia yungas*. 1, Habitus. 2, Head and pronotum.



Figs. 3-6. *Chloronia yungas*. 3, Head, pattern of fuscous spots. 4, Male genitalia dorsal. 5, Same, ventral. 6, Male tenth abdominal sternite.

setose, each with basal patch of spinous setae (Fig. 4). Ninth gonostylus incurved, subcylindrical to slightly convex, finely and densely setose, with sharp apical point. Ninth sternum subdivided in two lightly sclerotized plates, each with a well developed lateral lobe and a slightly developed posteromedian lobe; plates densely setose posteriorly. Membrane between 9th and 10th sternites eversible, bilobate, thickened. Tenth sternite convex, with noticeable anterolateral and anteromedian projections; lobes lightly sclerotized, about twice as long as wide, narrower at base, conspicuously setose, widely separated, slightly divergent (Fig. 6).

Distribution.—This new species appears to occur in montane forests on the eastern slopes of the Andes, from about 1,100 to 1,600 m elevation. Its range seems to fall within the Las Yungas phytogeographic province of Cabrera and Willink (1973), which forms a long and narrow strip from Venezuela to northwestern Argentina, limited generally by the Amazonian province.

Material examined.—Holotype: ♂, BOLIVIA. La Paz: Yungas, Río Murrurata to Suapi, 1,400–1,600 m, 26–28.xi.1984, L. E. Peña G. [forewing length = 43.5 mm] (NMNH). Paratypes: BOLIVIA. Cochabamba: Chapare, Alto Palmar, 1100 m, xi.[19]60, [no collector], 4 ♂, 2 ♀ [Philip A. Adams Collection, 1998 Bequest to Calif. Acad. Sci.] (CAS); same data but xii.[19]60, 1 ♀ (CAS); PERU. Cuzco: Paucartambo [to Pilcopata Rd.], [Río San Pedro at] Pte. San Pedro, ca. 50 km NW Pilcopata, 1,600 m, 2–3.ix.1988, O. Flint & N. Adams, 1 ♂ (NMNH); Paucartambo [to Pilcopata Rd.], [Río San Pedro at] Pte. San Pedro, ca. 50 km NW Pilcopata, km 152, 13°09'S, 71°26'W, 1,430 m, 30–31.viii.1989, N. Adams et al., 1 ♂ (NMNH).

Etymology.—This new *Chloronia* species is named after a phytogeographic

province, Las Yungas, in a portion of which this new species was collected.

ADDITIONAL MATERIAL EXAMINED

A single female specimen from Peru (forewing length = 37 mm) did not match the rest of the specimens and might actually represent an undescribed species. The head color pattern is as in the new species; however, the forewing has a noticeable color pattern. Also the forewing length of the specimen seems to fall beyond the lower value of the new species range. It is hoped that male specimens of this potentially new species are soon collected.

Chloronia sp.—PERU. Huallaga: Aguaytia, 400 m, ii.[19]61, Bought F. H. Walz, 1 ♀ (CAS).

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